Children are always told to eat their fruits and vegetables, but only one in five children in the US consume the recommended 9-13 servings of fruits and vegetables daily with vegetables being the most difficult to get children to eat. Consequently, poor habits as a child lead to poor habits as an adult. Vegetable-rich diets can prevent some cancers, cardiovascular disease, and many other chronic conditions.

In an effort to increase the nutrition and overall health of high-risk Mexican American adolescents, researchers at the USDA/ARS Children’s Nutrition Research Center at Baylor College of Medicine used an “intense intervention” on the children. The children were divided and the group receiving the “intense intervention” was given a weekly nutritional education session, four weekly physical activity sessions, and a daily snack intervention that consisted of 1 oz peanuts or ¾ oz to 1 oz peanut butter. These children were compared to a “self help” group that only received a book and spent the “intervention time” in study hall/health class. All children participating in the study were receiving inadequate levels of nutrients of concern prior to the study with the overweight and obese children getting even less of these nutrients than the others.

Approximately 80% of the children receiving the intense intervention lost weight after one year and continued to lose weight beyond the one year treatment. Eating peanuts and peanut butter provided them the feeling of satiety. They snacked less throughout the day allowing weight loss to occur. The children that lost weight also saw decreased total cholesterol and bad cholesterol, smaller waist sizes, decreased triglycerides, and improved quality of life. Only about 35% of the children in the “self help” group lost weight. Although these children made great strides by losing weight, no change was seen in their dietary pattern—specifically their fruit and vegetable consumption.

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Children tend to be vegetable resistant—neglecting to eat any vegetables at all. To observe children’s vegetable consumption, a follow-up study split children into two groups to examine vegetable consumption. One group was given raw carrots, celery, and broccoli to eat. The other group was given the same raw vegetables, but paired the vegetables with peanut butter for dipping.8

After a four-month period, the children that ate vegetables paired with peanut butter showed a significant increase in overall vegetable consumption while the children that ate only vegetables showed a decrease in overall vegetable consumption. Not only did the children who ate their vegetables with peanut butter increase their vegetable intake over the semester, but they ate a greater variety of vegetables as well.8

Dipping vegetables in peanut butter provides children with a dip that they will not only enjoy, but will benefit from because it is rich in key nutrients needed for growth and disease prevention. Even in vegetable-resistant children, vegetables paired with peanut butter allowed them to consume more vegetables as they found the flavor more acceptable than plain raw vegetables. This study presents a simple, nutritious, and cost-effective strategy to increase vegetable intake among children.8

Use a Nutrient-Rich Dip

Dips are often utilized to encourage consumption of healthy vegetables with a flavorful taste, but not all dips are healthy or contain beneficial nutrients themselves. Peanut butter was chosen in this study as a way to encourage vegetable consumption because it is rich in Dietary Guidelines nutrients of concern namely vitamin E, magnesium, potassium, and fiber and also offers the benefit of satiety. Other dips commonly paired with vegetables, like ranch dressing, contain considerably less nutrients (see graph).
Why it Worked

Peanuts are what researchers call a “preferred flavor” which means that most of us naturally like it! Children were given peanuts and peanut butter everyday and they didn’t get tired of it.8 In a related adult study, researchers at Purdue University found that peanut consumption increased over time when participants were told to incorporate peanuts in their diet. Repeated peanut exposure did not diminish their likeability.10

Peanuts are nutrient dense. One serving of peanuts provides many of the essential nutrients we need each day such as vitamin E, magnesium, folate, potassium, and fiber.9

Eating peanuts and peanut butter help reduce hunger and help maintain weight. Because peanuts provide so much protein and fiber, peanut eaters feel satisfied and eat less throughout the day.10 Peanuts have more protein than all other nuts.9

Peanuts and peanut butter are convenient. They come in portion packs for convenience, are durable, and don’t need to be refrigerated.

High-Risk Hispanics

In the school used by Baylor researchers, 95% of the students were self-identified Mexican-Americans and 81% of the students were from low-income families and qualified to receive free or reduced lunch.8 Mexican-American children have the highest rate of obesity and, as a whole, do not consume an appropriate amount of nutrients.7

The prevalence of childhood obesity is on the rise with Mexican Americans possessing the highest rates.7 These children face serious physical and psychosocial risks and display a lower quality of life.11 As they age, these children are at risk of being overweight or obese adults and developing type 2 diabetes, sleep apnea, gallbladder disease, hypertension, and hyperlipidemia.7

Snacking

Over the past 30 years, there has been an increase in children snacking, but a decrease in meals—mostly breakfast. Children are eating about 3 snacks per day, which means that many are eating 6-8 times per day. Because snacking is happening more frequently, over a quarter of their daily calories are coming from snack foods.12 Not only are children snacking more, but the calorie values in the snacks they are choosing are increasing as well.13 The top snack foods children are eating are high in carbohydrates and sugars.13 Consumption of high carbohydrate, high sugar, and salty snacks has increased the most and fruit juices are being consumed more over whole fruit.12 Snacking is a large part of our eating pattern. Rather than advise people to stop snacking all together, it could be an opportunity to include more nutritious foods in their diets.

Top 10 Foods Reported as Snacks by 9-12 year-old Children

- **Beverages**: (soft drinks, fruit drinks, milk, fruit juices)
- **Savory snacks from grains**: (popcorn, tortilla chips, pretzels, crackers)
- **Candy**
- **Fruits**: (apples, bananas, grapes, oranges)
- **Cookies & bars**: (chocolate chip cookies, crème-filled chocolate cookies, sugar cookies, brownies)
- **Ice cream**
- **Potato chips & French fries**
- **Cakes, doughnuts, pastries, pies**
- **Pizza, burritos, tacos**
- **Sandwiches**

Source: WWEIA, NHANES 2005-2006, 1 day, 9-12 year olds
References


13. NFCS 1977-78; NHANES 2001-02, 1 day, 9-12 year olds.

The Peanut Institute is a non-profit organization that supports nutrition research and develops educational programs to encourage healthy lifestyles.

For Further Information:
The Peanut Institute
P.O. Box 70157
Albany, GA 31708-0157
USA

TEL: 1-888-8PEANUT
FAX: 1-229-888-5150
www.peanut-institute.org

Go to www.peanut-institute.org for:

• Nutrition research on peanuts, peanut butter, and peanut oil
• Recipes
• Meal plans
• Educational materials

Ingredients:
3 cups garbanzos, soaked overnight
1/2 cup lemon juice
water as needed
2/3 cup creamy peanut butter
1 bunch italian parsley, chopped fine
1 jalapeño, seeds removed, chopped fine
peanut oil to taste
lightly salt and pepper to taste
cut vegetables for dipping

Directions:
Cook garbanzos slowly in water until very soft. (May substitute canned garbanzos but limit the salt added to taste). They should be very mushy when one is taken and smashed between the fingers. Drain. In a food processor, place all the garbanzos and process with some of the lemon juice, peanut oil, salt, pepper, and water. Process until smooth. Scoop the mixture into a bowl.

Add peanut butter. Stir well and adjust the oil and water for texture, and salt and pepper for taste. Make topping by combining parsley, jalapeño, and garlic in a small bowl. Cover with peanut oil. Season to taste with salt and pepper.

Peanutty Hummus

Directions:
Cook garbanzos slowly in water until very soft. (May substitute canned garbanzos but limit the salt added to taste). They should be very mushy when one is taken and smashed between the fingers. Drain. In a food processor, place all the garbanzos and process with some of the lemon juice, peanut oil, salt, pepper, and water. Process until smooth. Scoop the mixture into a bowl.

Add peanut butter. Stir well and adjust the oil and water for texture, and salt and pepper for taste. Make topping by combining parsley, jalapeño, and garlic in a small bowl. Cover with peanut oil. Season to taste with salt and pepper.

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